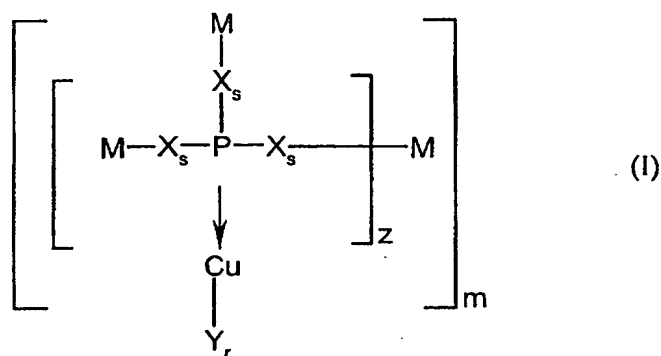


Patent Claims

1. Process for the production of aminodiphenylamines comprising the steps of reacting nitrohalogenated benzenes with anilines in the presence of a base and a catalyst, wherein the catalyst is copper-phosphorus complexes of the general formula

wherein



X may be identical or different and denotes O, NH, S or C_nH_{2n} , with the proviso that n may be arbitrarily chosen for each X and denotes 0, 1, 2 or 3,

M may be identical or different and denotes $\text{C}_6\text{-C}_{18}$ -aryl, $\text{C}_1\text{-C}_{19}$ -alkyl, $\text{C}_7\text{-C}_{19}$ -aralkyl or denotes heteroaryl with 1 to 3 heteroatoms and 6 to 19 C atoms, wherein two or more radicals M may arbitrarily be bridged by a covalent bridge or by an alkylidene bridge containing 1 to 4 carbon atoms,

Y denotes halogen or a trifluoroacetyl, trifluoromethanesulfonyl, nonafluorobutanesulfonyl, cyanide, acetyl, an optionally

fluorinated acetylacetonyl, a nitrate, arylsulfonyl, oxinate, phosphate, carbonate or tetrafluoroborate radical,

z denotes 1, 2 or 3,

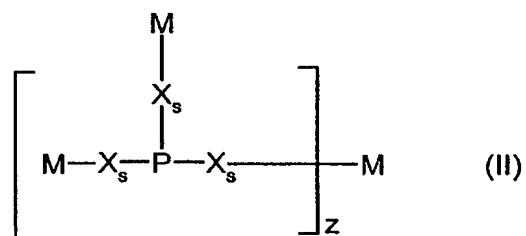
m denotes integers from 1 to 6,

r denotes 0, 1 or 2, and

s denotes 0 or 1,

wherein intermediately formed nitrodiphenylamines are hydrogenated.

2. The process according to Claim 1, wherein the copper-phosphorus complexes are prepared by reacting phosphorous compounds of the compounds of the formula (II)



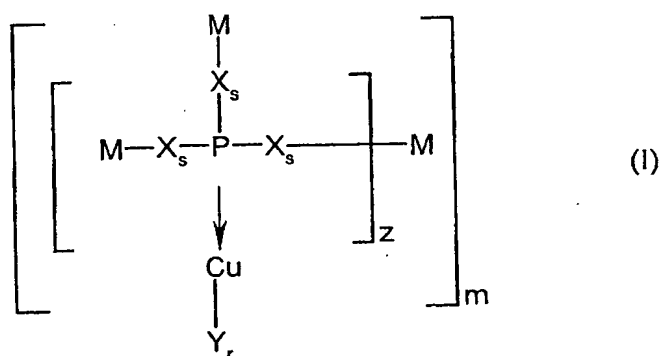
with copper compounds of the formula (III)



wherein M, X, Y, s, z and r have the meanings as formula (I).

3. The process according to Claim 2, wherein formula (I) is a copper-phosphine complex, a copper-phosphonite complex or a copper-phosphite complex.

4. The process according to Claim 1, wherein the nitrohalogenated benzenes are selected from the group consisting of 4-nitro-2-methylchlorobenzene, 4-nitro-3-methylfluorobenzene, 4-nitrochlorobenzene, 3-nitro-chlorobenzene or 2-nitrochlorobenzene, 4-nitrochlorobenzene, 4-nitrophenyl-trifluoromethanesulfonic acid ester, 4-nitrophenylnonafluorobutane-sulfonic acid ester, 4-nitrophenyl carbamate and 4-nitrophenyltrifluoromethylsulfonic acid ester.
5. The process according to Claim 1, wherein the aniline is a o-, m- or p-substituted aniline.
6. The process according to Claim 5, wherein the substituted aniline is selected from the group consisting of vinylaniline, 4-tert.-butylaniline, p-anisidine, o-anisidine, o-toluidine, p-toluidine, anthranilic acid methyl ester, o-aminobenzonitrile, p-aminobenzonitrile and 4-ethylaniline.
7. The process according to Claim 1, wherein the base is selected from the group consisting of alkali metal, alkaline earth metal carbonate, alcoholate, phosphate, fluoride, hydroxide and mixture thereof.
8. The process according to Claim 7, wherein the base is selected from the group consisting of potassium carbonate, sodium carbonate, caesium carbonate, caesium hydrogen carbonate, sodium methanolate, potassium tert.-butylate, potassium amylate, caesium fluoride, potassium phosphate and barium hydroxide.
9. Process for the production of nitrodiphenylamines by reacting nitro-halogenated benzenes with aniline in the presence of a base and a copper-phosphorus complex of the general formula (I)



wherein

- X may be identical or different and denotes O, NH, S or C_nH_{2n}, with the proviso that n may be arbitrarily chosen for each X and denotes 0, 1, 2 or 3,
- M may be identical or different and denotes C₆-C₁₈-aryl, C₁-C₁₉-alkyl, C₇-C₁₉-aralkyl or denotes heteroaryl with 1 to 3 heteroatoms and 6 to 19 C atoms, wherein two or more radicals M may arbitrarily be bridged by a covalent bridge or by an alkylidene bridge containing 1 to 4 carbon atoms,
- Y denotes halogen or a trifluoroacetyl, trifluoromethanesulfonyl, nonafluorobutanesulfonyl, cyanide, acetyl, an optionally fluorinated acetylacetonyl, a nitrate, arylsulfonyl, oxinate, phosphate, carbonate or tetrafluoroborate radical,
- z denotes 1, 2 or 3,
- m denotes integers from 1 to 6,
- r denotes 0, 1 or 2, and
- s denotes 0 or 1.